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"These illustrations might be indefinitely extended. They show the direction in which the internal changes of the language are making. Some of these new terms are made strictly according to analogy; others not so happily; but usage soon establishes them. The Greek language is a wonderful phenomenon. It stands alone in the history of human speech, like the wonderful race which first created and still preserves it."

Four hundred and sixty-seventh meeting.

May 24, 1859. — ANNUAL MEETING.

The PRESIDENT in the chair.

The Corresponding Secretary read letters from the Librarian of the Royal University of Bonn, November 25, 1858; Société de Géographie, Paris, November 20, 1858; Académie Royale des Sciences à Amsterdam, December 20, 1858; Königlich Sächsische Bergakademie zu Freiberg (Sachsen), November 20, 1858; K. L. C. Akademie der Naturforscher, Jena, November 13, 1858; Académie Royale des Sciences de Stockholm, November 15, 1858; and the Société Imperiale des Sciences Naturelles de Cherbourg, September 1, 1858, acknowledging the receipt of the Academy's publications; — from the Académie Royale des Sciences de Stockholm, November 15, 1858, and the War Department, Washington, May 5, presenting their publications; — from the K. Preussische Akademie der Wissenschaften, August 12, 1858, acknowledging the receipt of the Academy's publications, and presenting its own; — and from the K. Bayerische Akademie der Wissenschaften, December 28, 1858, acknowledging the receipt of the Academy's publications, and asking that missing numbers may be supplied.

The Treasurer presented his annual report upon the finances of the Academy, which was ordered to be entered in full upon the record-book.

Professor Lovering, in behalf of the Committee of Publication, and Dr. A. A. Gould, from the Committee on the Library, severally presented their annual reports.

The Council submitted nominations for one Foreign Honorary Member, and three Associate Fellows; also a general report upon the actual state of the Academy, with notices of the members deceased during the past year, as follows: —

The following changes have occurred in the *personelle* of the Academy since the last Annual Meeting.

Nine members have been elected, to wit: seven Resident Fellows, one Associate Fellow, and one Foreign Honorary Member.

The Foreign Honorary Member, Professor LINDLEY, was chosen to fill the vacancy in Class II. Section 2, occasioned by the death of Mr. Brown.

The Associate Fellow, SIR WILLIAM E. LOGAN, the Government Geologist of Canada, belongs to Class II. Section 1.

Of the seven Resident Fellows, two belong to the First, three to the Second, and two to the Third Class.

Three Resident Fellows, one Associate Fellow, and four Foreign Honorary Members have deceased during the past year; in all eight, or one less than the accessions.

The Resident Fellows lost from our ranks are WILLIAM CRANCH BOND, of Class I. Section 2; DR. ICHABOD NICHOLS, of Class III. Section 1; and WILLIAM H. PRESCOTT, of Class III. Section 3.

The Associate Fellow is Professor PARKER CLEAVELAND, of Class I. Section 3.

The Foreign Honorary Members are BARON HUMBOLDT, MANUEL JOHN JOHNSON, ROBERT BROWN, and JOHANNES MÜLLER.

The Academy will observe that, although this list of its members recently deceased is not remarkably numerous, yet it mainly consists of most illustrious names.

The eulogies pronounced upon the distinguished historian and the eminent astronomer, who were almost simultaneously removed from our immediate ranks, are still fresh in our remembrance. The remaining name is that of an accomplished scholar and divine, whose age and infirm health had prevented his attendance at our meetings since his residence in this vicinity.

Our late Associate Fellow, Professor CLEAVELAND, of Bowdoin College, died at Brunswick in October last, at the age of seventy-eight years. He was graduated at Harvard College in 1799, where he became a Tutor in 1803. Two years afterwards he was appointed Professor of Mathematics, Natural Philosophy, Chemistry, and Mineralogy in Bowdoin College, the whole duties of which chair he performed until the year 1828, when he was relieved from the Mathematics, and with this exception until the year of his death, a period of more than half a century. Although somewhat later in the field than Maclure, Gibbs, and Silliman, and although he gave place in later years to Shepard and Dana, yet Professor Cleaveland may well be called the father of American Mineralogy. His celebrated Treatise on Mineralogy and Geology, published in 1816, and in a second and enlarged edition in 1822, gave a great impulse to the study of those sciences in this country, and made for him a deservedly high reputation, both at home and abroad. That he did not follow up a career of such promise by the original researches and authorship for which his talents and his great and various knowledge eminently fitted him, must be explained by his devotion to the immediate interests of the institution with which he was identified almost from its foundation, and by his conscientious absorption in the duties of his triple or quadruple professorial office, each department of which he is known to have filled with signal ability and faithfulness. Something may also be attributed to his temperament, and to his singularly stationary habits. He is said never to have entered a railroad carriage, and rarely any other vehicular conveyance.

Considering that Professor Cleaveland made no appearance before the public during the last thirty years, it may be noted to the credit for discernment of the officers of the Smithsonian Institution, and as a just recognition of the services of a pioneer in American science, that our lamented associate was chosen one of the first and very few honorary members of that Institution.

The four names which now disappear from the list of our surviving Foreign Honorary Members represent so many great lights of science lately extinguished; two of them, Müller and Johnson, ere they had attained their full meridian.

Johannes Müller, who was perhaps universally regarded as the most eminent physiologist of the present era, died on the 28th of April, 1858, therefore nearly a month before our last anniversary; but the melancholy tidings had not then reached us. Though old in fame, he was still comparatively young in years, having barely reached the age of fifty-seven.

MANUEL JOHN JOHNSON, the late Director of the Radcliffe Observatory, Oxford, was, by a disease of the heart, suddenly removed from the scene of his important labors, on the 28th day of February last. He was elected a Foreign Honorary Member of this Academy only about two years before; and, from his early death, it has happened that his name does not appear upon any published list of our actual members. Educated at Addiscombe, Mr. Johnson entered the Royal Artillery in the year 1821, and it was while stationed on military duty at St. Helena that his taste and talent for astronomical observation unfolded. Here his leisure, during a residence of ten years, was turned to good account in collecting materials for his St. Helena Catalogue of the mean places of six hundred and six principal fixed stars of the Southern Hemisphere, which was published in 1835; a work which, from its sharp accuracy, won for its author at once an enviable reputation. On his return to England he was entered, at a later age than is common, at Magdalen Hall, Oxford; and in 1839, immediately upon taking his degree, he received the appointment of Radcliffe Observer, and began the labors which have raised the Radcliffe Observatory to its present high rank. Established in this favorable position, he immediately commenced his principal scientific undertaking, the determination, upon a regular and most judicious plan, of the places of the close circumpolar and the chief northern stars, as far as to the 45th degree of declination. This undertaking he consistently and most persistently carried out, for nineteen years, in each of which a volume of his "Radcliffe Observations" promptly made its appearance. This work was virtually finished, and its value is everywhere recognized from the portions which have long been in use. It only remained to crown the whole by the combination of all the results into a sytematic catalogue. Even this was well-nigh done; and the first proofs of the volume which was to embody this consummation lay before him, when his hand was suddenly arrested by death.

In his employment of the heliometer, — the most complex of astronomical instruments; in the choice and plan of his investigations; in the refinement of his methods and the rigorous exactness of his observations; in the soundness of his judgment; and, not least, in the conscientious faithfulness and patience with which he assumed and endured such unremitting toil, without making, and without expecting to make, any brilliant discoveries,—he is thought to have manifested the best qualities of the practical astronomer, and to have secured a high place in the annals of the science. Personally, Johnson is said to have been strongly marked in the simplicity and independence of his character, and most attractive by his frankness, geniality, and the full and hearty co-operation which he loved to extend to all his fellow-astronomers.

The two remaining names represent stars of the very first magnitude, which, as they pass from the field of sight on the completion of a long and illustrious course, leave no equals behind them.

Beyond the immediate pale of science, and the circle of its most devoted cultivators, this association of the names of HUMBOLDT and BROWN may seem new and strange; — the one, a name familiar to the whole civilized world; the other, hardly known to a large portion of his educated countrymen. Yet these names stand together, in the highest place, upon the rolls of almost every Academy of Science in the world; and the common judgment of those competent to pronounce it will undoubtedly be, that although these vacant places upon those honorable rolls may be occupied, they will not be *filled*, in this, perhaps not in several generations.

Upon the death of ROBERT BROWN, which occurred on the 10th of June last, in his eighty-fifth year, it was remarked that, next to Humboldt, his name adorned the honorary list of a greater number of scientific societies than that of any other naturalist or philosopher. It was Humboldt himself who, many years ago, saluted Brown with the appellation of *Botanicorum facile Princeps;* and the universal consent of botanists recognized and confirmed the title. However the meed of merit in science should be divided between the most profound, and the most active and prolific minds, — between those who *divine* and those who *elaborate,* — it will probably be conceded by all, that no one since Linnæus has brought such rare sagacity to bear upon the structure, and especially upon the ordinal characters and natural affinities of plants, as did Robert Brown. True, he was fortunate in his time and his opportunities. Men of great genius, happily, often are, or appear to be, through their power of turning opportunities to good account. The whole herbaria of Sir Joseph Banks, and the great collections which he himself made around the coast of Australia, in Flinders's expedition, and which he was able to investigate upon the spot during the four years devoted to this exploration, opportunely placed in

Brown's able hands as it were the vegetation of a new world, as rich as it was peculiar, — just at the time, too, when the immortal work of Jussieu had begun to be appreciated, and the European and other ordinary forms of vegetation had begun to be understood in their natural relations. The new, various, and singular types which render the botany of New Holland so unlike all other, Mr. Brown had to compare among themselves, — to unravel their intricacies with scarcely a clew to guide him, except that which his own genius enabled him to construct in the process of the research, — and to bring them harmoniously into the general system of botanical natural alliance as then understood, and as he was himself enabled to ascertain and display it. It was the wonderful sagacity and insight which he evinced in these investigations, which, soon after his return from Australia, revealed the master mind in botanical science, and erelong gave him the position of almost unchallenged eminence, which he retained, as if without effort, for more than half a century.

The common observer must wonder at this general recognition, during an era of great names and unequalled activity, of a claim so rarely, and as it were so reluctantly, asserted. For brief and comparatively few — alas! how much fewer than they should have been! — are Mr. Brown's publications. Much the largest of them is the Prodromus of the Flora of New Holland, issued fifty years ago, which begins upon the one hundred and forty-fifth page, and which stopped short at the end of the first volume. The others are special papers, mostly of small bulk, devoted to the consideration of a particular plant, or a particular group or small collection of plants. But their simple titles seldom foreshow the full import of their contents. Brown delighted to rise from a special case to high and wide generalizations; and was apt to draw most important and always irresistible conclusions from some small, selected data, or particular point of structure, which to ordinary apprehension would appear wholly inadequate to the purpose. He had unequalled skill in finding decisive instances. So all his discoveries, so simply and quietly announced, and all his notes and observations, sedulously reduced to the briefest expression, are fertile far beyond the reader's expectation. Cautious to excess, never suggesting a theory until he had thoroughly weighed all the available objections to it, and never propounding a view which he did not know how to prove, perhaps no naturalist ever taught so much in writing so little, or made so few statements that had to be recalled, or even recast; and of no one can there be a stronger regret that he did not publish more.

With this character of mind, and while carefully sounding his way along the deep places of a science the philosophy and grounds of which were forming, day by day, under his own and a few contemporary hands, Brown could not have been a voluminous writer. He could never have undertaken a *Systema Regni Vegetabilis*, content to do his best at the moment, and to take upon trust what he had not the means or the time to verify, — like his contemporary, DeCandolle, who may worthily be compared with Brown for genius, and contrasted with him for the enthusiastic devotion which constantly impelled him to publication, and to lifelong, unselected, herculean labor, over all the field, for the general good.

Nor could Brown ever be brought to undertake a *Genera Plantarum*, like that of Jussieu; although his favorable and leisurely position, his vast knowledge, his keen discrimination, and his most compact mode of expression, especially indicated him for the task. Evidently, his influence upon the progress of Botany might have been greater, or at least more immediate and more conspicuous. Yet, rightly to estimate that influence now, we have only to compare the *Genera Plantarum* of Endlicher with that of Jussieu, — separated as they are by the half-century which coincided with Brown's career, — and mark how largely the points of difference between the two, so far as they represent inquiry, and genuine advancement in the knowledge of floral structure, actually originated with him. Still, after making due allowance for a mind as scrupulous and cautious as it was clear and profound, also for an unusually retiring disposition, which even in authorship seems to have rendered him as sedulous to avoid publicity as most writers are to gain it, it must be acknowledged that his retentiveness was excessive; and that his guarded published statements sometimes appear as if intended — like the anagrams of the older mathematicians and philosophers — rather to record his knowledge than to reveal it. But this was probably only in appearance, and rather to be attributed to his sensitive regard for entire accuracy, and his extreme dislike of all parade of knowledge, — to the same peculiarity which everywhere led him to condense announcements of great consequence into short paragraphs or foot-notes, and to insert the most important facts in parentheses, which he who runs over the page may read, indeed, but which only the most learned and the most reflecting will be apt to comprehend. In candor it must be said, that his long career has left some room for the complaint that he did not feel bound to exert fully and continuously all his matchless gifts in behalf of the science of which he was the most authoritative expositor.

But if thus in some sense unjust to himself and to his high calling, Brown could never be charged with the slightest injustice to any fellow-laborer. He was scrupulously careful, even solicitous, of the rights and claims of others; and in tracing the history of any discovery in which he had himself borne a part, he was sure to award to each one concerned his full due. If not always communicative, he was kind and considerate to all. To adopt the words of one of his intimate associates, "those who knew him as a man will bear unanimous testimony to the unvarying simplicity, truthfulness, and benevolence of his character," as well as to "the singular uprightness of his judgment."

The remaining, and the most illustrious name of all, — and one in its wide renown strongly in contrast with the last, — has only just now been inscribed upon our obituary list.

The telegraph of the last week brought to us the painful intelligence that the patriarch of science, the universal HUMBOLDT, died at Berlin on the 6th of May. Born in 1769, a year more prolific in great men than any equal period of all preceding time,* Humboldt had, before the end of the eighteenth century, exhibited qualities of the very highest order, and obtained a place of acknowledged celebrity in Europe. This, however, was the mere prelude to his career, for with the close of that century he commenced, with Bonpland, his wonderful exploration of Spanish America, which continued during five years. This journey must be considered in all future time as, substantially, the scientific discovery of Spanish America; and whether we measure its results by the amount of knowledge through the wide fields of Astronomy, Geography, Geology, Mineralogy, Meteorology, Zoölogy, Botany, and Political Economy, or the personal qualities by which this knowledge was collected and reduced to its place in the records of science, we cannot hesitate to place the expedition as amongst the most important and successful ever executed by man.

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* Napoleon, Wellington, Mehemet Ali, Soult, Lannes, Ney, Castlereagh, Chateaubriand, Cuvier, and Humboldt.

On his return to Europe, in 1805, Humboldt was employed several years in reducing his immense collection of materials to form for publication. From that time to his death, a period of almost half a century, he resided (except for a short time, in which he made his journey to Northern Asia) in Europe, mostly in France and Germany. The last twelve or fifteen years of this great man were principally employed in the production of his *Cosmos*, — the crowning labor of his long life, the harvest of his mature wisdom, — a work that could not have been produced by any other man, simply because no other man possessed the treasures, or a key to the treasures, of the various knowledge contained in it.

From his return to Europe to his death, he possessed, indisputably, the first place amongst philosophers, for the vast extent of his acquirements. Without doubt, at all times during the present century there have been men much greater than Humboldt in each special department of science, but no one to compare with him in the number of subjects in which he had but few superiors, — no one who could, like him, bring all the sciences into one field of view, and compare them as one whole, through their relations and dependences. It was probably this extent of knowledge that led him to generalization rather than particular discovery; to trace connections and relations, rather than to search for new and minute facts or particular laws; to produce the Cosmos, rather than discover the atomic theory or the cellular formation of organic structures. Many other men have been masters of several specialties. Humboldt alone brought the whole range of the physical and natural sciences into one specialty.

We cannot close this brief notice of the character and career of our illustrious associate without one moment's allusion to his amiable moral nature, his love of justice, and his superiority to all merely personal ends. So strong was his desire to give the influence of his high scientific position to the cause of civilization and the progress of knowledge, by assisting all applicants for his opinion and advice upon scientific subjects, that he permitted a correspondence to be extorted from him which in his last days became a load too great to be borne, and compelled a cry for relief that had hardly subsided when the news of his death reached us.

Such is the faint outline of a man whose name is indelibly written with those who have been most eminent in this wonderful age of scientific activity. The Academy claims the privilege, in common with the learned societies with which he was associated throughout the civilized world, to express its sorrow for his death, and to offer its tribute of honor to his memory.

The Academy now consists of

153 Resident Fellows,
78 Associate Fellows, and
71 Foreign Honorary Members.

Of the Foreign Honorary Members

26 belong to the First Class,
26 " " Second Class, and
19 " " Third Class.

Of the Associate Fellows,

32 belong to the First Class,
29 " " Second Class, and
17 " " Third Class.

Of the 153 Resident Fellows,

45 are ranked in the First Class,
46 " " " Second Class, and
62 " " " Third Class.

Their distribution into the several sections need not here be detailed; for the printed list, newly revised, is just now issued.

A clause in the statute, Chap. I. § 2, makes it "the duty of this Council" "to exert its influence to obtain and preserve a due proportion in the number of Fellows in each of the Sections." In view of which, the Council venture to call attention to the fact, that the First and Second Classes of the Resident Fellows are as nearly equal as possible, while the Third Class, instead of one third, now comprises two fifths of the Resident Fellows.

Professor Agassiz then said: —

"Gentlemen, — I have been requested to present on this occasion some remarks upon the scientific career of Humboldt. So few days have elapsed since the sad news reached our shore, that I have had no time to prepare an elaborate account of that wonderful career, and I am not myself in a condition in which I could have done it, being deprived of the use of my eyes, so that I had to rely upon the hand of a friend to make a few memoranda on a slip of paper, which might enable me to present my thoughts in a somewhat regular order. But I have, since the day we heard of his death, recalled all my recollections of him; and, if you will permit me, I will present them to you as they are now vividly in my mind.

"HUMBOLDT — ALEXANDER VON HUMBOLDT as he always called himself, though he was christened with the names of FREDERICK HEINRICH ALEXANDER — was born in 1769, on the 14th of September, — in that memorable year which gave to the world those philosophers, warriors, and statesmen who have changed the face of Science and the condition of affairs in our century. It was in that year that Cuvier and Chateaubriand were also born; and among the warriors and statesmen, Napoleon and the Duke of Wellington are children of 1769; and it is certainly a year of which we can say that its children have revolutionized the world. Of the early life of Humboldt I know nothing; and I find no records, except that in his tenth year he lost his father, who had been a major in the army during the Seven Years' War, and afterwards a chamberlain to the King of Prussia. But his mother took excellent care of him, and watched over his early education. The influence she had upon his life is evident from the fact, that, notwithstanding his yearning for the sight of foreign lands, he did not begin to make active preparations for his travels during her lifetime. In the winter of 1787-88, he was sent to the University of Frankfort on the Oder, to study finances. He was to be a statesman; he was to enter high offices, for which there was a fair chance, owing to his noble birth and the patronage he could expect at the court. He remained, however, but a short time there.

"Not finding those studies to his taste, after a semester's residence in the University, we find him again at Berlin, and there in intimate friendship with Wildenow, then Professor of Botany, and who at that time possessed the greatest herbarium in existence. Botany was the first branch of natural science to which Humboldt paid especial attention. The next year he went to Göttingen, being then a youth of twenty years; and here he studied Natural History with Blumenbach, and thus had an opportunity of seeing the progress Zoölogy was making in anticipation of the great movement by which Cuvier placed that science on a new foundation. For it is an unquestionable fact, that in first presenting a classification of the animal kingdom based upon a knowledge of its structure, Blumenbach in a measure anticipated Cuvier; though it is only by an exaggeration of what Blumenbach did, that an unfair writer of later times has attempted to deprive Cuvier of the glory of having accomplished this object upon the broadest possible basis. From Göttingen he visited the Rhine, for the purpose of studying Geology, and in particular the basaltic formations of the Seven Mountains. At Mayence he became acquainted with George Forster, who proposed to accompany him on a journey to England. You may imagine what an impression the conversation of that active, impetuous, and powerful man made upon the youthful Humboldt. They went to Belgium and Holland, and thence to England, where Forster introduced him to Sir Joseph Banks. Thus the companions of Captain Cook in his first and second voyages round the world, who were already venerable in years and eminent as promoters of physical science, not yet established in the popular favor, were the early guides of Humboldt in his aspirations for scientific distinction. Yet Humboldt had a worldly career to accomplish. He was to be a statesman, and this required that he should go to the Academy of Commerce at Hamburg. He remained there five months, but could endure it no longer; and he begged so hard, that his mother allowed him to go to Freyberg and study Geology with Werner, with a view of obtaining a situation in the Administration of Mines. See what combinations of circumstances prepare him for his great career, as no other young man ever was prepared. At Freyberg he received the private instruction of Werner, the founder of Modern Geology, and he had as his fellow-student no less a man than Leopold von Buch, then a youth, to whom, at a later period, Humboldt himself dedicated one of his works, inscribing it 'To the Greatest Geologist,' as he was till the day of his recent death. From Freyberg he made frequent excursions into the Hartz and Fichtelgeberg and surrounding regions, and these excursions ended in the publication of a small work upon the Subterranean Flora of Freyberg, (*Flora Subterranea Fribergensis,*) in which he described especially those cryptogamous plants, or singular low and imperfect formations, which occur in the deep mines. But here ends his period of pupilage. In 1792 he was appointed an officer of the mines (*Oberbergmeister*). He went to Baireuth as director of the operations in those mines belonging to the Frankish Provinces of Prussia. Yet he was always wandering in every direction, seeking for information and new subjects of study. He visited Vienna, and there heard of the discoveries of Galvani, with which he made himself familiar; went to Italy and Switzerland, where he became acquainted with the then celebrated Professors Jurine and Pictet, and with the illustrious Scarpa. He also went to Jena, formed an intimate acquaintance with Schiller and Goethe, and also with Loder, with whom he studied Anatomy. From that time he began to make investigations of his own, and these investigations were in a line which he has seldom approached since, being experiments in Physiology. He turned his attention to the newly discovered power, by which he tested the activity of organic substances; and it is plain, from his manner of treating the subject, that he leaned to the idea that the chemical process going on in the living body of animals furnished a clew to the phenomena of life, if it was not life itself. This may be inferred from the title of the book published in 1797, — *Ueber die gereizte Muskel- und Nerven-fäser, mit Vermuthungen über den chemischen Process des Lebens, in Thieren und Pflanzen.* In these explanations of the phenomena we have the sources of the first impulses in a direction which has been so beneficial in advancing the true explanation of the secondary phenomena of life; but which, at the same time, in its exaggeration as it prevails now, has degenerated into the materialism of modern investigators. In that period of all-embracing activity, he began to study Astronomy. His attention was called to it by Baron von Zach, who was a prominent astronomer, and at that time was actively engaged upon astronomical investigations in Germany. He showed Humboldt to what extent Astronomy would be useful for him, in his travels, in determining the position of places, the altitude of mountains, &c.

" So prepared, Humboldt now broods over his plans of foreign travel. He has published his work on the Muscular and Nervous Fibres at the age of twenty-eight. He has lost his mother; and his mind is now inflamed with an ungovernable passion for the sight of foreign, and especially tropical lands. He goes to Paris to make preparation by securing the best astronomical, meteorological, and surveying instruments. Evidently he does not care where he shall go, for on a proposition of Lord Bristol to visit Egypt, he agrees to it. The war prevents the execution of this plan, and he enters into negotiations to accompany the projected expedition of Captain Baudin to Australia; but when Bonaparte, bent on the conquest of Egypt, started with a scientific expedition, Humboldt wishes to join it. He expects to be one of the scientific party, and to reach Egypt by way of Barbary. But all these plans failing, he goes to Spain with the view of exploring that country, and finding perhaps some means of joining the French expedition in Egypt from Spain. While in Madrid, he is so well received at the court, — a young nobleman so well instructed has access everywhere, — and he receives such encouragement from persons in high positions, that he turns his thoughts to an exploration of the Spanish Provinces of America. He receives permission not only to visit them, but instructions are given to the officers of the colonies to receive him everywhere and give him all facilities, to permit him to transport his instruments, to make astronomical and other observations, and to collect whatever he chooses; and all that only in consequence of the good impression he made when he appeared there, with no other recommendation than that of a friend who happened to be at that time Danish Minister to the Court of Madrid. But with these facilities offered to him, he sails in June, 1799, from Corunna, whence he reaches Teneriffe, makes short explorations of that island, ascending the peak, and sails straightway to America, where he lands in Cumana in the month of July, and employs the first year and a half in the exploration of the basin of the Orinoco and its connection with the Amazon. This was a journey of itself, and completed a work of scientific importance, establishing the fact that the two rivers were connected by an uninterrupted course of water. He established for the first time the fact, that there was an extensive low plain, connected by water, which circled the high table-land of Guiana. It was an important discovery in Physical Geography, because it changed the ideas about water-courses, and about the distribution of mountains and plains, in a manner which has had the most extensive influence upon the progress of Physical Geography. It may well be said that, after this exploration of the Orinoco, Physical Geography begins to appear as a part of science. From Cumana he makes a short excursion to Havana, and, hearing there of the probable arrival of Baudin on the west coast of America, starts with the intention of crossing at Panama. He arrives at Carthagena, but is prevented by the advance of the season from crossing the Isthmus, and changes his determination from want of precise information respecting Baudin's expedition. He determines to ascend the Magdalena River and visit Santa Fé de Bogotá, where, for several months, he explores the construction of the mountains, and collects plants and animals; and, in connection with his friend, Bonpland, who accompanied him from Paris, he makes those immense botanical collections which were afterwards published by Bonpland himself, and by Kunth, after Bonpland had determined on an expedition to South America. In the beginning of 1802 he reaches Quito, where, during four months, he turns his attention to everything worth investigating, ascends the Chimborazo to a height to which no human foot had reached, anywhere; and having completed this survey, and repeatedly crossed the Andes, he descends the southern slope of the continent to the shore of the Pacific at Truxillo, and, following the arid coast of Peru, he visits finally Lima. I will pass lightly over all the details of his journey, for they are only incidents in that laborious exploration of the country, which is best appreciated by a consideration of the works which were published in consequence of the immense accumulation of materials gathered during those explorations. From Lima, or rather from Callao, he sails in 1802 for Guayaquil and Acapulco, and reaches Mexico in 1803, where he makes as extensive explorations as he had made in Venezuela and the Andes, and after a stay of about a year, having put all his collections and manuscripts in order, revisits Cuba for a short time, comes to the United States, makes a hurried excursion to Philadelphia and Washington, where he is welcomed by Jefferson, and finally returns with his faithful companion Bonpland to France, accompanied by a young Spanish nobleman, Don Carlo de Montufar, who had shared his travels since his visit to Quito.

"At thirty-six years of age, Humboldt is again in Europe, with collections made in foreign lands, such as had never been brought together before. But here we meet with a singular circumstance. The German nobleman, the friend of the Prussian and Spanish Courts, chooses Paris for his residence, and remains there twenty-two years to work out the result of his scientific labor; for, since his return, with the exception of short journeys to Italy, England, and Germany, sometimes accompanying the King of Prussia, sometimes alone, or accompanied by scientific friends, he is entirely occupied in scientific labors and studies. So passes the time to the year 1827; and no doubt he was induced to make this choice of a residence by the extraordinary concourse of distinguished men in all branches of science with whom he thought he could best discuss the results of his own observations. I shall presently have something to say about the works he completed during that most laborious period of his life. I will only add now, that in 1827 he established himself in Berlin, having been urged of late by the King of Prussia again and again to return to his native land. And there he delivered a series of lectures preparatory to the publication of Cosmos; for in substance, even in form and arrangement, these lectures, of which the papers of the day gave short accounts, are a sort of prologue to the Cosmos, and a preparation for its publication.

"In 1829, already sixty years of age, he undertakes another great journey. He accepts the invitation of the Emperor Nicholas to visit the Ural Mountains, with a view of examining the gold-mines and localities where platina and diamonds had been found, to determine their geological relations. He accomplished the journey with Ehrenberg and Gustavus Rose, who published the result of their mineralogical and geological survey in a work of which he is the sole author; while Humboldt published, under the title of Asiatic Fragments of Geology and Climatology, his observations of the physical and geographical features made during that journey. But he had hardly returned to Berlin when, in consequence of the Revolution of 1830, he was sent by the King of Prussia as extraordinary ambassador to France, to honor the elevation of Louis Philippe to the throne. Humboldt had long been a personal friend of the Orleans family, and he was selected as ambassador on that occasion on account of these personal relations. From 1830 to 1848, he lived alternately in Berlin and in Paris, spending nearly half the time in Paris and half the time in Berlin, with occasional visits to England and Denmark; publishing the results of his investigations in Asia, making original investigations upon various things, and especially pressing the establishment of magnetic observatories, and connected observations all over the globe. He obtained the co-operation of the Russian government and that of the government of England; and at that time those observatories in Australia and in the Russian Empire to the borders of China were established, which have led to such important results in our knowledge of terrestrial magnetism. Since 1848, he has lived uninterruptedly in Berlin, where he published, on the anniversary of his eightieth year, a new edition of those charming first flowers of his genius, his Views of Nature, the first edition of which was published in Germany in 1808. This third edition appeared with a series of new and remodelled annotations and explanations; and that book in which he first presented his views of nature, in which he drew those vivid pictures of the physiognomy of plants, and of their geographical distribution, is now revived and brought up to the present state of science. The 'Views of Nature' is a work which Humboldt has always cherished, and to which in his Cosmos he refers more frequently than to any other work. It is no doubt because there he had expressed his deepest thoughts, his most impressive views, and even foreshadowed those intimate convictions which he never expressed, but which he desired to record in such a manner that those that can 'read between the lines' might find them there; and certainly there we find them. His aspiration has been to present to the world a picture of the physical world, from which he would exclude everything that relates to the turmoil of human society and to the ambitions of individual men. A life so full, so rich, is worth considering in every point of view, and it is most instructive to see with what devotion he pursues his work. As long as he is a student, he is really a student, and learns faithfully, and learns everything he can reach. And he continues so for twenty-three years. He is not one of those who are impatient to show that they have something in them, and with premature impatience utter their ideas, which become insuperable barriers to independent progress in later life. Slowly, and confident of his sure progress, he advances, and while he learns, he studies also independently of those who teach him. He makes his experiments, and to make them with more independence he seeks for an official position. During five years he is a business man, in a station which gives him leisure. He is Superintendent of the Mines, but a Superintendent of the Mines who can do much as he pleases; and while he is thus officially engaged journeying and superintending, he prepares himself for his independent researches. And yet it will be seen he is thirty years of age before he enters upon his American travels, those travels which must be said to have been the greatest undertaking ever carried to a successful issue, if judged by the results; they have as completely changed the basis of physical science, as the revolution which took place in France about the same time has changed the social condition of that land. Having returned from these travels to Paris, a new period of his life begins, — that of concentrated critical studies. He works up his materials then with untiring ardor and devotion; and he is not anxious to appear to have done it all himself. Oltmanns is called to his aid to revise his astronomical observations and his barometrical measurements, by which he has determined the geographical position of seven hundred different points, and the altitude of more than four hundred and fifty of them.

"The large collection of plants which Bonpland had begun to illustrate, but of which his desire of seeing the tropics again has prevented the completion, he intrusts to Kunth. He has also brought home animals of different classes, and distributes them among the most eminent zoölogists of the day. To Cuvier he intrusts the investigation of that remarkable Batrachian, the Aeolotel, the mode of development of which is still unknown, but which remains in its adult state in a condition similar to that of the tadpole or the frog during the earlier period of its life. Latreille describes the insects, and Valenciennes the shells and the fishes; but yet, to show that he might have done the work himself, he publishes a memoir on the anatomical structure of the organs of breathing in the animals he has preserved, and another upon the tropical monkeys of America, and another upon the electric properties of the electric eel. But he was chiefly occupied with investigations in Physical Geography and Climatology. The first work upon that subject is a dissertation on the geographical distribution of plants, published in 1817. Many botanists and travellers had observed, that in different parts of the world there are plants not found in others, and that there is a certain arrangement in that distribution; but Humboldt was the first to see that this distribution is connected with the temperature of the air, as well as with the altitudes of the surface on which they grow, and he systematized his researches into a general exposition of the laws by which the distribution of plants is regulated. Connected with this subject he made those extensive investigations into the mean temperature of a large number of places on the surface of the globe, which led to the drawing of the isothermal lines so important in their influence in shaping Physical Geography and giving accuracy to the mode of representing natural phenomena. Before Humboldt we had no graphic representation of complex natural phenomena which made them easily comprehensible, even to minds of moderate cultivation. He has done that in a way which has circulated information more extensively, and brought it to the apprehension more clearly, than it could have been done by any other means.

"It is not too much to say, that this mode of representing natural phenomena has made it possible to introduce in our most elementary works the broad generalizations derived from the investigations of Humboldt in South America; and that every child in our schools has his mind fed from the labors of Humboldt's brain, wherever geography is no longer taught in the old routine. Having completed his American labors, Humboldt published three works, partly connected with his investigations in America, and partly with his further studies in Europe since his return; and, among others, a book which first appeared as a paper in the *Dictionnaire des Sciences Naturelles,* but of which separate copies were printed under the title of *Essai sur la Constitution des Roches dans le deux Hemisphères.* This work has been noticed to the extent which it deserved by only one geologist, Elie de Beaumont. No other seems to have seen what there is in that paper, for there Humboldt shows for the first time, that, while organic nature is the same all the world over, — granite is granite, and basalt is basalt, and limestone and sandstone limestone and sandstone, wherever found, — there is everywhere a difference in the organized world, so that the distribution of animals and plants represents the most diversified aspects in different countries. This at once explains to us why physical sciences may make such rapid progress in new countries, while Botany and Zoölogy have to go through a long process of preparation before they can become popular in regions but recently brought under the beneficial influence of civilization. For while we need no books of our own upon Astronomy, Chemistry, Physics, and Mineralogy, we have to grope in the dark while studying our plants and animals, until the most common ones become as familiar to us as the common animals of the fields in the old countries. The distinction which exists in the material basis of scientific culture in different parts of the world is first made evident by this work. By two happily chosen words, Humboldt has presented at once the result of our knowledge in Geology at the time, in a most remarkable manner. He speaks there of 'independent formations.' Who, before Humboldt, thought there were successive periods in the history of our globe, which were independent one of the other? There was in the mind of geologists only a former and a present world. Those words expressing the thought, and expressing it in reference to the thing itself, for the first time occur in that memoir; thus putting an end to those views prevailing in Geology, according to which the age of all the rocks upon the earth can be determined by the mineralogical character of the rocks appearing at the surface. The different geological levels at which rocks belonging to the same period have been deposited, but which have been disturbed by subsequent revolutions, he happily designated as 'geological horizons.'

"It was about the time he was tracing these investigations that he made his attempt to determine the mean altitude of the continents above the sea. Thus far geographers and geologists had considered only the heights of mountain chains, and the elevation of the lower lands, while it was Humboldt who first made the distinction between mountain chains and table-lands. But the idea of estimating the average elevation of continents above the sea had not yet been entertained; and it was again Humboldt who, from the data that he could command, determined it to be at the utmost nine hundred feet, assuming all irregularities to be brought to a uniform level. His Asiatic travels gave him additional data to consider these depressions and swellings of continents, when discussing the phenomena of the depression of the Caspian Sea, which he does in a most complete manner.

"There is a fulness and richness of expression and a substantial power in his writing, which are most remarkable, but which render his style somewhat involved. He has aimed to present to others what nature presented to him, — combinations interlocked in such a complicated way as hardly to be distinguishable, and his writings present something of the kind. You see his works, page after page, running into volumes without division into chapters or heads of any sort; and so conspicuous is that peculiarity of style in his composition, that I well remember hearing Arago turning to him, while speaking of composition, and saying: 'Humboldt, you don't know how to write a book; you write without end, but that is not a book, — it is a picture without a frame.' Such an expression of one scientific man to another, without giving offence, could only come from a man so intimately associated as Arago was with Humboldt. And this leads me to a few additional remarks upon his character and social relations. Humboldt was born near the court. He was brought up in connection with courtiers and men in high positions in life. He was no doubt imbued with the prejudices of his caste. He was a nobleman of high descent. And yet the friend of kings was a bosom friend of Arago, and he was the man who could, after his return from America, refuse the highest position at the Court of Berlin, that of Minister of Public Instruction, preferring to live in a modest way in Paris, in the society of all those illustrious men who then made Paris the centre of intellectual culture. It was there that he became one of that *Société d'Arcueil*, composed of all the great men of the day, to which the paper on Isothermal Lines was presented, and by which it was printed, as all papers presented to it were, for private distribution. But from his intimate relations especially to the Court of Prussia, some insinuations have been made as to the character of Humboldt. They are as unjust as they are severe in expression. He was never a flatterer of those in power. He has shown it by taking a prominent position, in 1848, at the head of those who accompanied the victims of the Revolution of that year to their last place of rest. But while he expressed his independence in such a manner, he had the kindliest feelings for all parties. He could not offend, even by an expression, those with whom he had been associated in early life; and I have no doubt that it is to that kindliness of feeling we must ascribe his somewhat indiscriminate patronage of aspirants in science, as well as of men who were truly devoted to its highest aims. He may be said to have been, especially in his latter years, the friend of every cultivated man, wishing to lose no opportunity to do all the good of which he was capable; for he had a degree of benevolence and generosity which was unbounded. I can well say that there is not a man engaged in scientific investigations in Europe, who has not received at his hands marked tokens of his favor, and who is not under deep obligations to him. May I be permitted to tell a circumstance of this kind which is personal to me, and which shows what he was capable of doing without giving an opportunity of mentioning it. I was only twenty-four years of age when in Paris, whither I had gone with means given to me by a friend; but I was at last about to resign my studies from want of ability to meet my expenses. Professor Mitscherlich was then on a visit in Paris, and I had seen him in the morning, when he asked me what was the cause of my depressed feelings; and I told him that I had to go, for I had nothing left. The next morning, as I was seated at breakfast in front of the yard of the hotel where I lived, I saw the servant of Humboldt approach. He handed me a note, saying there was no answer, and disappeared. I opened the note, and I see it now before me as distinctly as if I held the paper in my hand. It said: —

"'My friend, I hear that you intend leaving Paris in consequence of some embarrassments. That shall not be. I wish you to remain here as long as the object for which you came is not accomplished. I enclose you a check for £50. It is a loan which you may repay when you can.'

"Some years afterwards, when I could have repaid him, I wrote, asking for the privilege of remaining for ever in his debt, knowing that this request would be more consonant to his feelings than the recovery of the money, — and I am now in his debt. What he has done for me, I know he has done for many others, in silence and unknown to the world.

"I wish I could go on to state something more of his character, his conversational powers, &c., but I feel that I am not in a condition to speak of them. I will only say, that his habits were very peculiar. He was an early riser, and yet he was seen at late hours in the saloons in different parts of Paris. From the year 1830 to 1848, while in Paris, he had been charged by the King of Prussia to send reports upon the condition of things there. He had before prepared for the King of Prussia a report on the political condition of the Spanish colonies in America, which no doubt had its influence afterwards upon the recognition of the independence of those colonies. The importance of such reports to the government of Prussia may be inferred from a perusal of his political and statistical essays upon Mexico and Cuba. It is a circumstance worth noticing, that, above all great powers, Prussia has more distinguished scientific and literary men among her diplomatists than any other state. And so was Humboldt actually a diplomatist in Paris, having been placed in that position, not from choice, but in consequence of the benevolence of the King, who desired to give him an opportunity of being in Paris as often and as long as he chose.

"But from that time there were two men in him, — the diplomatist, living in the Hotel des Princes, and the naturalist, who roomed in the Rue de la Harpe, in a modest apartment in the second story, where his scientific friends had access to him every day before seven. After that he was frequently seen working in the library of the Institute, until the time when the Grand Seigneur made his appearance at the Court or in the saloons of Paris.

"The influence he has exerted upon the progress of science is incalculable. I need only allude to the fact that the Cosmos, bringing every branch of natural science down to the comprehension of all classes of students, has been translated into the language of every civilized nation of the world, and gone through several editions. With him ends a great period in the history of science, a period to which Cuvier, Laplace, Arago, Gay-Lussac, DeCandolle, and Robert Brown belonged, and of whom only one is still living, — the venerable Biot.

"Gentlemen, I present the following resolutions for your consideration: —

"*Resolved*, That the members of the American Academy of Arts and Sciences have heard with deep sorrow of the loss the world has sustained in the recent death of their late foreign associate, the Baron Alexander von Humboldt.

"*Resolved*, That they recognize in their late associate a most illustrious example of devotion to the noblest objects and pursuits. From early life to the last days of an old age protracted far beyond the usual limit of intellectual activity, he has been vigorously and assiduously engaged in advancing, by his own labors, and by the impulse and support he has given to the labors of others, the boundaries of human knowledge. The results of his all-comprehending researches he has presented to the world in such simple and attractive forms as to render them the common property of mankind. To the loftiest gifts of intellect he has added never-failing generosity, disinterestedness, and humanity. His memory, therefore, deserves and will receive the veneration of all future ages. While we grieve that the world is deprived of the light of his presence, we rejoice that his vast powers remained undiminished to the last, and that we may pronounce his life eminently happy, since he has enjoyed, during its long course, the warmest affection of all who have known him, and has been graciously permitted to close it in the midst of the sublimest occupations, and without suffering calamity."

The resolutions were unanimously passed.

The annual election was held, and the following officers were chosen for the ensuing year: —

JACOB BIGELOW, *President.*
DANIEL TREADWELL, *Vice-President.*
ASA GRAY, *Corresponding Secretary.*
S. L. ABBOT, *Recording Secretary.*
J. P. COOKE, *Librarian.*
EDWARD WIGGLESWORTH, *Treasurer.*

Council.

J. I. Bowditch,
Joseph Lovering, } of Class I.
E. N. Horsford,
Louis Agassiz,
Jeffries Wyman, } of Class II.
J. B. S. Jackson,

James Walker,
Henry W. Torrey, } of Class III.
Robert C. Winthrop,

The Standing Committees, nominated by the President, were elected as follows: —

Rumford Committee.

EBEN N. HORSFORD, JOSEPH LOVERING,
DANIEL TREADWELL, HENRY L. EUSTIS,
MORRILL WYMAN.

Committee of Publication.

JOSEPH LOVERING, JEFFRIES WYMAN,
CORNELIUS C. FELTON.

Committee on the Library.

A. A. GOULD, W. B. ROGERS,
GEORGE P. BOND.

Committee to Audit Treasurer's Accounts.

THOMAS T. BOUVÉ, C. E. WARE.

Committee of Finance.

JACOB BIGELOW, EDWARD WIGGLESWORTH,
J. I. BOWDITCH.

M. LIOUVILLE, of Paris, was elected a Foreign Honorary Member, to fill the vacancy in Class I. Section 1 (Mathematics), caused by the death of the late M. Cauchy.

The Hon. JOHN HENRY CLIFFORD, of New Bedford, and the Hon. EMORY WASHBURN, of Cambridge, were elected Fellows, in Class III. Section 1 (Philosophy and Jurisprudence).

Professor Gray communicated (by title), —

"Characters of some New *Musci* and *Hepaticæ*, collected by Charles Wright in the North Pacific Exploring Expedition, under the command of Captain John Rodgers. By William S. Sullivant and Leo Lesquereux."

"Characters of New Algæ of the same Expedition. By Professor William H. Harvey."

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Vol. L. General Index to Forty-nine Volumes. 1819 – 45. 8vo. New Haven. 1847.

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Mémoires. Années 1810, 1818, 1823, 1825 – 27, 1833, 1837 – 40, et Tome V. 2e Serie. 1856. 9 vols. 8vo. Dijon. 1810 – 40, 1856.

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Mémoires. Tome IV. 8vo. Paris et Cherbourg. 1856.

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Description d'un Nouveau Genre d'Edente Fossile, renfermant plusieurs Espèces voisines du Glyptodon. Atlas. Ouvrage publié par l'Acad. des Sciences, Arts, et Belles-Lettres de Dijon. 4to. Dijon.

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Atlas de l'Archéologie du Nord, représentant des Échantillons de l'Age de Bronze et de l'Age de Fer. Publié par la Soc. Roy. des Antiq. du Nord. 1 vol. 8vo. Copenhague. 1857.

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Grundzüge der Schlessischen Klimatologie. . . . . . Aus den von der Schlessischen Gesellschaft für vaterlandische Cultur seit dem Jahre 1836 veranlassten und einigen alteren Beobachtungsreihen ermittelt und nach den in der Jahren 1852 – 55 ausgeführten Rechnungen der Herren W. Günther, R. Büttner, und H. v. Rothkirch zusammengestelt und für den Druck vorbereitet von Dr. J. G. Galle, Director der Sternwarte. . . . . . 4to pamph. Breslau. 1857.

Hon. Charles Sumner.

United States Naval Astronomical Expedition to the Southern Hemisphere, during the Years 1849, –50, –51, –52. Vol. VI. Magnetical and Meteorological Observations under the Direction of Lieutenant J. M. Gilliss, LL. D., Superintendent. 4to. Washington. 1856. [Ex. Doc.]

Report of the Superintendent of the Coast Survey, showing the Progress of the Survey during the Year 1855. 1 vol. 4to. Washington. 1856. [Ex. Doc.]

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Report on the United States and Mexican Boundary Survey made under the Direction of the Secretary of the Interior, by William H. Emory, Major First Cavalry and United States Commissioner. Vol. I. 4to. Washington. 1857. [Ex. Doc.]

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The Nicolson Pavement, invented by Samuel Nicolson of Boston, Mass. 8vo pamph. Boston. 1855.

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Chicago Historical Society.

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Histoire de l'Inoculation Preservative de la Fièvre Jaune. 1 vol. 8vo. Paris. 1858.

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The Study and Practice of Midwifery. A Discourse read before the Massachusetts Medical Society at its Annual Meeting in Boston, May 28, 1856. 8vo pamph. Boston. 1856.

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